MULTI-LAYER STEEL CABLE FOR TIRE CROWN REINFORCEMENT

ABSTRACT

A multi-layer cable having an unsaturated outer layer, usable as a reinforcing element for a crown reinforcement of a tire, comprising a core of diameter d_0 surrounded by an intermediate layer (C1) of four or five wires (N = 4 or 5) of diameter d_1 wound together in a helix at a pitch p_1, this layer C1 itself being surrounded by an outer layer (C2) of P wires of diameter d_2 wound together in a helix at a pitch p_2 , P being less by 1 to 3 than the maximum number P_{max} of wires which can be wound in one layer about the layer C1, this cable having the following characteristics (d_0 , d_1, d_2, p_1 and p_2 in mm):

- (i) $0.10 \leq d_0 < 0.50$;
- (ii) $0.25 \leq d_1 < 0.40$;
- (iii) $0.25 \leq d_2 < 0.40$;
- (iv) for N = 4: $0.40 < (d_0 / d_1) < 0.80$;
  for N = 5: $0.70 < (d_0 / d_1) < 1.10$;
- (v) $4.8\ \pi\ (d_0 + d_1) < p_1 < p_2 < 5.6\ \pi\ (d_0 + 2d_1 + d_2)$; and
- (vi) the wires of layers C1 and C2 are wound in the same direction of twist.

The invention furthermore relates to the articles or semi-finished products made of plastics material and/or rubber which are reinforced by such a multi-layer cable, in particular to radial tires and their crown reinforcement plies.